

EXAMINATION IN CURVES.*

38. For what reason is an egg-shaped curve the best, and what is the best egg form for the section of a sewer?

39. What is the best egg shape or other curve for the section of a railway tunnel?

40. In what way can a workman describe such egg formed curves for such purposes, full size, by simple continuous motion?

41. What is an isometrical ellipse?

42. In what ancient Grecian building has the isometrical ellipse been adopted?

43. Shew how a cylinder or cone may be cut to produce an isometrical ellipse.

44. State in which modern bridge the half of an isometrical ellipse has been selected as the form of the centre arch.

45. Can any reason be assigned why the ancient Greek geometrical architects selected the form of the isometrical ellipse?

46. And why should that curve be selected for an arch in modern bridge building?

47. Shew how the varying ribs of a Gothic groin should be formed from any given curve for one rib, so that all the other ribs, differing in length of span, but rising to the same height, and with the same transverse section throughout, shall be perpendicular over their plan, intersect truly, and each spring at the same distance from a point on the cap of the pillar.

48. Shew how several ribs of like sections, &c. as in the last can be placed so that their intersections shall be all of the same length.

49. Shew how several ribs, as before, can be placed so as to intersect truly, and although of various lengths and making various angles with each other on plan, will at the springing not be more crowded in one place than another.

50. What is a catenary curve?

51. Is it an asymptotic line?

52. Prove whether it is or not.

53. Shew the simplest way of setting out a railway curve in a tunnel as the work proceeds—whether the line is a portion of a circle or a line having two points of contrary flexure to which the right lines of the railway at both ends are tangents to the curve at those points.

54. Supposing several radii proceeding from the centre of the eye of any ancient example of the Greek volute, at what point of any revolution is a tangent to the curve perpendicular to a radius?

55. And at what point is a tangent most oblique to a radius?

56. Compare these with any modern example of the Greek volute, and point out the difference.

The study of architecture, engineering, and decorative art, would be greatly facilitated by a series of cones, right cylinders, circular cylinders and spheres, to as large a size as convenient; some of them being cut to shew their several distinct plane sections; others to shew their various distinct intersections with each other; and these accompanied by their several envelopes.

They would thus be proceeding on the same principle that the ancients made use of to ascertain true geometrical forms—true lines of beauty. The Greeks knew the right line, the circle, the true form of the ellipse, the hyperbola, and the parabola, *practically*; and their relation to solids. They also knew other varying curves, but if they had ascertained their relation to solids, that knowledge appears to have been lost.

Some hundreds of pieces may be necessary to complete the illustration that would be desirable. Even the platonic bodies and their plane sections should be included, and the importance of all these may be shewn by asking what are the distinct plane sections of a cube? In how many ways can a cube be cut by a plane section into two equal and similar parts? How can a cube be cut by a plane section so that its half shall have five, in other cases six, and in other cases seven plane surfaces?

The knowledge of intersections and envelopes is essential for the construction of groins, skew-bridges, &c. Mr. Morgan justly says the student should first have his mind formed by drawing straight lines and curves of every dimension, and in every possible combination. To what extent is this done at present in any

British or foreign school from true geometrical forms? The better geometry is understood the more accurately nature can be examined—nature in perfection is geometry.

JOS. JOPLING.

29, Wimpole-street, 16th Aug., 1845.

NATIONAL ANTIQUITIES.

Is the British Museum visited for curiosity alone? Can there be a higher proof of the intellectual appreciation of its contents than the desire so universal for a more liberal endowment,—the oft-repeated hope that it will be built as one national monument of which at least we may be proud? And the proposal to establish Museums of Art throughout the principal cities of the land,—was that no indication of the state of popular opinion? We say popular, for men do not discuss these questions as the interests of a class, but as the common benefit of all. Can any one doubt but that, after the expression of opinion in the House of Commons upon the National Gallery, that building must and will be ultimately given up? Can we suppose that when it is admitted by the premier to be inadequate, and that we have thrown away "the most magnificent site in Europe," it will be long suffered to exist as it is, or remain unaltered or unremoved? Not the most virulent opponent of measures connected with these subjects can be found willing to repeat a so stultified confession of faith. Very few we suspect would be found so courageous as to oppose them. Unless perhaps, the Chancellor of the Exchequer, for the time being, whose "Whole Duty of Official Man" is, apparently, to take from the public as much as parliament votes possible, and to return the little which government votes enough. We cannot, indeed, withhold the expression of our extreme regret upon the manner and arguments with which Mr. Wyse's motion, "To establish a Museum of National Antiquities," was met. Without a juxtaposition of works of art of different periods; how can we estimate the past, or produce for the future? How can artists conduct historical works without a knowledge of the spirit of each age? Manners, habits, costumes, ceremonial observances, and peculiar traits of national character are all incidentally or immediately connected with this study. Is there any one who does not feel an interest in the preservation of public monuments, who would not restrain the dilapidations, who would not restore them? Yet how shall we restrain, if we do not place them beneath the protection of public feeling; how restore, unless we know the origin, principle, and style of their construction? But is not the study of the antiquities of Art intimately connected with literature? Has it not an historical importance? He knows but little of the history of civilization in Europe who has neglected this interesting witness of its progress. The French Government, the most liberal in Europe, has ever wisely considered the patronage of literature and art, and the protection of national monuments, as a stringent duty, and made it a distinct part of their administration. Those only who have read the documents transmitted to M. Guizot by the Committee of Art and Monuments can be aware of the proof it affords of the honourable feeling of the minister, and the general desire of the people to give effect to his intention. But in England we live under a different dispensation. History is here an old almanac; antiquity of no repute, unless as the record of fiscal regulations; and works, the evidence and illustration of manners, events, and arts, valueless, if not as tribute to the Treasury, or according to the gold and silver standard of the Custom-house. And we have, notwithstanding, an enlightened Government; and we are, as we say we are, an enlightened people! The Chancellor of the Exchequer refuses the appointment of a commission for the establishment and maintenance of a Museum of National Antiquities, because, abroad, "these were the care of the Government, and in England they were not, for custom (or the Custom-house?) left the advancement of such objects to private individuals." Can any argument be more cogent? Sir J. Graham was equally concise, and equally argumentative. "Will you establish a museum?" "We will not." "Why?" "Because we have not!" and thereupon ensues the negative

without a division. But we do not despair; the ministers are better than their speeches; "the grave consideration" the chancellor requires will be followed by the adoption of the measure which the country asks for. It is in cases of this kind that figures are more argumentative than facts; there is no solvent which acts so powerfully upon each other reasoning as the surplus on quarter-day.—*Art Union.*

NOTES IN THE PROVINCES.

Crosthwaite Church, Keswick, one of the most ancient in the kingdom, has recently been almost rebuilt at the sole expense of James Stanger, Esq. of Lathwaite. The whole of the interior decorations were under the superintendence of Mr. Jones, the architectural carver and modeller of London. The alterations and adornments are said to have cost upwards of 4,000*l.*—During the past year the committee of council on education have made the following grants towards the erection of schools, masters' houses, &c., in Yorkshire:—400*l.* to Batley Carr; 400*l.* to Honley; 188*l.* to Bedale; 110*l.* to Cononley in Kildwick; 65*l.* to North Frodingham; 45*l.* to Dalton; and a few other smaller amounts for less populous places.—It is in contemplation at Hull to enlarge and improve the ferry boat dock. At a quarterly meeting of the Town Council, held last week, it was determined that means be instantly adopted towards obtaining plans and estimates. It is probable that an Act of Parliament will be applied for next session to empower the council to obtain loans of money to defray the immediate expense, and to levy funds in the form of borough rates, for the purpose of liquidating the loans and paying the interest.—A large body of quarry men have lately been employed in boring for stone on the Weston Hills, for the erection of the new docks at Runcorn, Cheshire, which when finished will extend nearly a mile in length.—Her Majesty and Prince Albert recently had Mr. Webster's new patent hand-pipe and file-machine exhibited and explained to them, and after seeing it in operation, gave instructions it is said to have the estate in which Osborne House stands, consisting of about 1,500 acres, thoroughly drained upon Mr. Webster's plan.—On Monday last the foundation-stone of the New Church at Middleton, near Leeds, was laid by C. J. Brandling, Esq., assisted by the architect, Mr. J. B. Chantrell. Upwards of 2,000 persons were present, including most of the neighbouring clergy and gentry.—The Commissioners of Woods and Forests have just determined upon several improvements in the Home and Great Parks at Windsor, according to the designs of Mr. Edward Blore. A lodge is to be erected at the entrance to the Great Park, close to Cumberland Lodge, the residence of Major General Wemyss, the manager of the farming establishments of his Royal Highness Prince Albert. The gardener's cottage close to Adelaide Lodge, in the Home Park, is to be taken down, and a picturesque building to harmonize in the style of its architecture, with Adelaide Lodge, erected on its site. Flying Barn, the residence of the fisherman in charge of Virginia Water and the fishery at Cumberland Lodge, is also to be taken down, and rebuilt in the Elizabethan style.—The first stone of a new church at Walton Breck, near Liverpool, was laid last week by William Brown, Esq., of Richmond-hill; Mr. John Hay is the architect, and Messrs. Richard and Paul Barker are the builders. The style is in the decorated Gothic of the thirteenth and fourteenth centuries, during the reign of Edward III. There will be two spacious school-rooms underneath, with every convenience, and the whole will be executed with a fine red stone found on the ground.—A coped tomb (of which there is an example in the Temple church, London) has recently been erected in the churchyard of Hanley Castle, Worcestershire, to the memory of the late head master of the Grammar School. The following is the inscription, which is in capital letters of an ancient form:—

ABEL SMITH B.A. PRESBYTER ECCLESIAE ANGLICANA
IDEMQUE LITUR. VETERIS PROMISSI SITI MAGISTER
DISCESSIT E VITA DIE DECIMIS XVIII
ANNO SALUTIS MDCCLXIII ATATIS REV

—The parishioners of St. Peter's, Bedford,

* See page 370 ante.